

The authors describe two approaches to determining pension obligations and measuring how well-funded a pension plan is. They believe a traditional approach, which predicts a return on investment on plan assets, is the best choice for multiemployer plans.



SETTING THE PENSION FUNDING TARGET:

Why Expected Return Matters

by | **Josh Shapiro and Cary Franklin**

benefits

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The city of Detroit's July bankruptcy filing and subsequent wide range of reported figures for its public pension plan's unfunded obligation offer a high-profile example for the discussion about how pension obligations should be measured.

How do we know how well-funded our pension plans really are? As is often the case with complex financial topics, the answer depends heavily on the context in which the figures are used. While this article addresses multiemployer pension plans, not public plans, the debate over the Detroit pension obligation raises important questions about how actuaries measure pension plan obligations—questions that are relevant to all types of plans.

Scope

There is general agreement that the amount of money a pension plan has on hand to support the benefits promised to participants should be connected to some measurement of the benefits' present value. However, there is debate among economists and actuaries about how those present values should be determined for funding multiemployer plans, which have unique circumstances when compared to single employer or government pension plans.¹

Since the passage of the Employee Retirement Income Security Act (ERISA) in 1974, the *traditional* approach has

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governed the funding of multiemployer pension plans. Some practitioners believe that multiemployer plans should move to a *financial economics* (FE) approach. This article will explore why using the FE approach would be harmful to both the participants who receive benefits from these plans and the companies that sponsor them.

Objectives of Pension Funding

There is near universal consensus that plan sponsors should set aside money to pay pension benefits in advance

of when those benefit payments are due, rather than operate under a pay-as-you-go arrangement. This process, known as *prefunding*, has the following objectives:

- **Maximize benefit security.** A key purpose of prefunding pension obligations is to create security for the benefits. In an ideal world, prefunding would be unnecessary, as plan sponsors would continue to exist indefinitely and would always remain willing and able to pay benefits as they come due. In practice, the ability of plan sponsors to make pension contributions changes over time, and it is necessary to set aside money in advance of when the participants will actually receive their benefits in order to provide reasonable security. The greater the degree of prefunding, the more secure the benefit promises.
- **Minimize cost.** It is undesirable for companies to contribute any more to pension plans than is necessary to provide adequate benefit security. Prefunding helps lower the long-term cost of retirement benefits by investing the contributions and using the investment income to lessen the plan's ultimate cost. Because cash contributed to the pension plan is not available for other purposes, such as expanding existing business operations or investing in new technologies, the steeper the prefunding requirements become, the less likely companies are to sponsor pension plans and the smaller benefits these plans will provide. This relationship highlights a basic fact of prefunding: If the level of conservatism in the funding requirements is too severe, both the number of entities offering pension benefits and the size of the benefits offered will decrease.
- **Maximize predictability.** Having stable, predictable pension contributions based on a consistent measurement of the benefit liabilities may be as important as, or more important than, minimizing costs. Plan sponsors have great difficulty managing their finances if their pension liabilities and contribution requirements fluctuate significantly from year to year. A stable funding goal, coupled with a prudent funding policy that develops a funding cushion, can go a long way toward

meeting the objective of predictable contribution budgets in future years.

Multiemployer Plans

Multiemployer pension plans are found in many industries, such as construction, retail, food, trucking, building services and entertainment. In most cases, contributions flow into a multiemployer plan under the terms of a collective bargaining agreement (CBA) that specifies how much each company must contribute for each unit of work its employees perform in covered employment. Most CBAs express their contribution rates as a dollar amount per hour, but some may use a different measure, such as days or weeks of work or a percent of covered earnings.

From the employees' perspective, these plans allow them to move among covered employers without losing pension coverage. This feature is especially critical in the construction and entertainment industries, where employee mobility is so common.

From the employer perspective, multiemployer plans create economy-of-scale savings that aren't achievable in single employer plans. Further, as a standalone legal entity, the plan performs all of the administrative functions that the company would need to handle if sponsoring its own plan. The employers' financial obligation to the plan is governed by the CBA terms, which creates more stable cash budgeting than exists in single employer plans. If the multiemployer plan becomes underfunded, the bargaining parties and the labor-management board of trustees sponsoring the plan will attempt to correct the shortfall through a combination of higher contribution rates and reduced benefits. Even if the application of all reasonable measures available to the bargaining parties proves insufficient to address the underfunding, the employer funding obligation remains very much limited by the terms of the CBA.²

Funding Approaches

While there are any number of approaches that actuaries could use to establish the funding goal for a pension plan, as a practical matter the approaches in use today fall into two broad categories. The first is the *traditional* approach, which determines the benefit liability (the fund-

ing goal) by discounting the future benefit payments by the expected rate of investment return that the actuary (with input from the investment consultant) believes the plan assets can produce over the long term. The second is the *financial economics (FE)* approach, which determines a "market value" of the benefit liabilities that is independent of the assets' expected earnings.

Traditional Approach

The liability amount determined using the traditional approach attempts to answer the deceptively simple question: How much money does the plan need to cover its promised benefits? We can begin to answer this question by considering this basic equation:

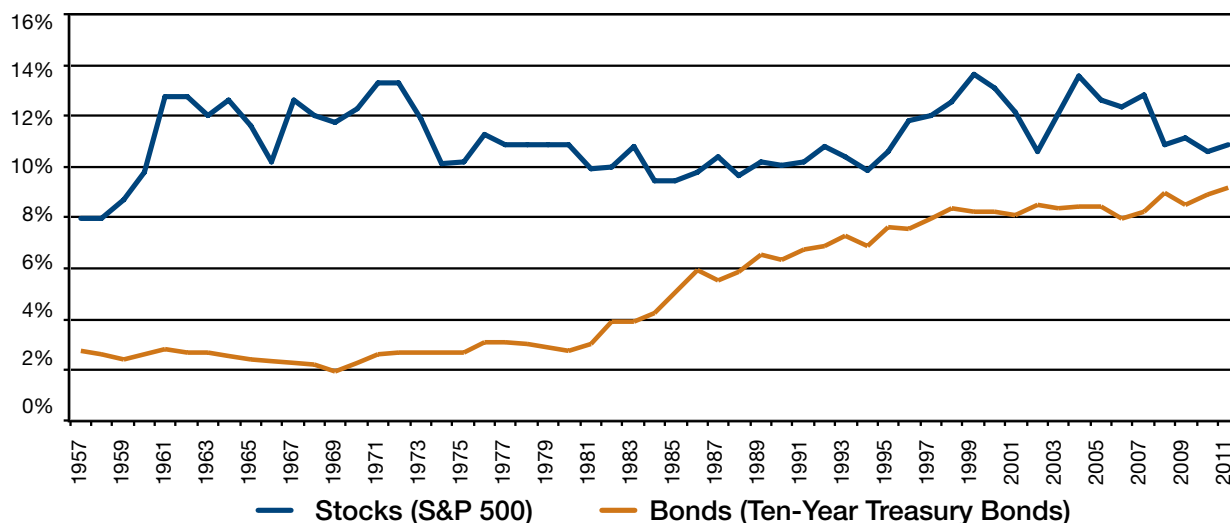
$$\text{Contributions} + \text{investment earnings} = \text{benefit payments} + \text{plan expenses.}$$

This equation provides insight into long-term pension funding. For example, it tells you immediately that the only ways to reduce contributions are to lower the benefit payments, save money on expenses or increase investment earnings. It also tells you that, for a given level of benefits and expenses, the greater the investment earnings, the lower the amount of contributions needed to fund those benefits.

Any meaningful long-term contribution budget must necessarily be related to an expectation of the future investment earnings. Whether or not the plan's assets are ultimately sufficient to pay all promised benefits is a function of the returns that those assets will actually earn, not what we expect they will earn. But until those earnings are realized, the expected earnings are our best guide for determining the necessary contributions. This principle is the basis for the benefit liability under the traditional approach.

As an extreme example, consider the pay-as-you-go approach to pension funding, where contributions equal the amount needed to cover benefits and expenses each year, with nothing left to invest. This approach maximizes the contributions because there are no investment earnings to help cover the cost. In this case, contributions would rise significantly over time, as more participants retire and benefit payments increase each year. Prefunding the benefit obligation provides an opportunity to both stabilize and

FIGURE

Rolling 30-Year Periods 1928-2011
Stock vs. Bond Returns

Source: A. Damodaran, Stern School of Business at New York University (and Federal Reserve database).

reduce annual contributions by establishing a long-term budget through the use of a stable and predictable benefit liability.

In calculating this benefit liability, the actuary must make a great many assumptions about future events. Some of these assumptions are demographic, such as the ages at which participants will retire, what forms of benefit they will elect and how long they will live. Others are economic, such as what level of investment return the assets will earn and what the plan's operating expenses and future rates of inflation will be. If every assumption the actuary makes is matched exactly by future experience, then the liability determined using the traditional approach will be the precise amount the plan would need to possess today so that when it makes the last benefit payment to the last surviving retiree, it would spend its last penny of assets.

Financial Economics Approach

The liability amount determined using the FE approach attempts to answer a very different question. Here, the focus is on the market value of the benefit liabilities at a point in time, as determined by current interest rates, rather than the

long-term cost of supporting the benefits. In basic terms, the *market value* of an asset or liability is the amount of cash required to move it onto or off the owner's balance sheet. For example, a stock share trading at \$100 has a market value of \$100, because the owner can sell it for \$100 in cash. Alternatively, if a business has agreed to provide six months of service to a customer, but can transfer that obligation to a different company for \$100,000, the obligation's market value is \$100,000. In the context of pension plans, the process of a plan sponsor moving the pension liabilities off of its balance sheet is referred to as *settling* the liabilities.

The market value of an asset or liability generally is determined by observing the price at which market participants are currently buying and selling that asset or liability. Among financial instruments, this works very well when there are a large number of market exchanges of identical assets or liabilities. For example, the market value of a corporate stock is easily determined by looking at the price at which investors are currently exchanging shares of that stock. Determining the market value of pension liabilities is not as simple, because plan sponsors are not regularly engaged in the practice

of buying and selling pension plan obligations, and no two plans are identical.

In general, the only way a plan sponsor can truly settle a pension obligation is to purchase annuities from an insurance company. These transactions are rare, so it is impractical to determine the market value of a pension liability by observing market transactions. Instead, actuaries apply FE principles to pension plans by noting that pension benefit payments have many similarities to bond cash flows and, unlike pension cash flows, it is a straightforward exercise to observe the market value of a bond's cash flow. The practical implementation of this method involves looking at the current yield curve for a particular category of bonds and then discounting the anticipated pension cash flows using the discount rates in the curve. In simple terms, the FE approach asks the question: If you could buy a low-risk bond to cover all pension payments, what would that bond cost today?

This method has certain limitations. While pension and bond cash flows have many similarities, they also have fundamental differences. Bonds and pension plans have cash flows that are largely predictable, but both possess uncertainties and, more importantly, these uncertainties have different characteristics. The dominant uncertainty in bond payments comes from the risk of issuer default. The uncertainty in pension cash flows results mainly from the employment and mortality patterns of the plan participants. Additionally, bond cash flows generally consist of a series of small coupon payments over no more than 30 years followed by a large principal repayment, while pension cash flows consist of immediate and deferred annuities with level payments that can easily extend over 75 years from the measurement date. The result of these differences is that while the FE funding target is determined in a manner consistent with how the financial markets value other long-term obligations, it does not represent the true market value of the pension liabilities in any precise or practical sense.

Comparison of Approaches

While both the traditional and FE approaches produce a measurement referred to as the pension *liability*, the mean-

ing of the word in these two contexts is sufficiently different that it is unfortunate the English language does not provide us with different words to use. There are legitimate arguments in favor of each approach in different contexts, but it is critical to always remember that on a very basic level, they represent different concepts.

The greatest strength of the liability determined by the traditional approach is the value of what it seeks to achieve. Pension plan sponsors, participants and observers invariably want to know whether the plan has enough money to pay the promised benefits. The liability amount determined using the traditional approach represents the actuary's attempt to answer this most critical of questions, by means of an approach that provides a consistent measurement of the benefit liability over time.

The primary weakness of the traditional approach is the uncertainty of the calculation. The actuary simply does not know precisely when people will retire, what returns the assets will earn, how long retirees will live or what the plan's operating expenses will be. If it were possible to know the long-term cost with precision, there would be broad agreement that this is the proper funding target. In the absence of this precision, some actuaries believe that an entirely different approach is appropriate.

While the FE approach involves the same demographic uncertainties as the traditional approach, its primary

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takeaways >>

- Since the passage of ERISA in 1974, the traditional approach of determining present value of pension benefits has governed the funding of multiemployer pension plans.
- The traditional approach determines the funding goal by discounting the future benefits by the expected rate of investment return produced by the plan's assets over the long term.
- The financial economics approach determines a market value of the benefit liabilities that is independent of the assets' expected earnings.
- The FE approach determines the market value of pension liabilities by asking the question: If you could buy a low-risk bond to cover all pension payments, what would that bond cost today?
- When used in multiemployer plans, the authors say the FE approach overstates costs, introduces unnecessary cash flow volatility and impairs benefit security.
- Because of the unique circumstances faced by multiemployer plans, the authors believe the FE approach is inappropriate for determining the funding requirements of multiemployer pension plans.

strength is that it provides, at a given point in time, consistent measurement of all long-term obligations; i.e., any two comparable sets of projected cash flows would have the same current value. The FE approach removes one key unknown of the traditional approach—the assumed long-term rate of return on plan assets—and replaces it with known current market interest rates. While the preceding discussion highlights how the FE liability does not actually represent the true market value of the benefit liabilities, it is a fair proxy for this amount based on observed market conditions. In comparison to the traditional approach, the FE approach replaces judgment and expectation about the future with comparability and relative certainty at a single point in time.

The biggest weakness of the FE approach, as applied to cash funding, is that the funding target it calculates is not directly related to the actual cost of

supporting an ongoing plan. As market interest rates rise, the FE liability declines, and as rates decline, the FE liability gets larger. This relationship demonstrates how the cost of settling pension liabilities changes over time. When rates are low, it is very expensive to settle pension obligations. Conversely, when rates are high, a settlement becomes a less costly transaction for the sponsor. This information is extremely useful to a plan sponsor that is deciding whether or not to terminate the plan and settle its obligations, but is much less relevant to a plan sponsor that intends to maintain the plan as an ongoing concern.

Funding on a Financial Economics Basis Overstates Costs

As discussed previously, a practical application of the FE approach typically looks at either U.S. Treasury or high-quality corporate bonds to determine the interest rate for discounting pen-

sion cash flows. There is little debate that, over long time periods, it is reasonable to expect that returns on equity investments will exceed the returns on bond investments. More than 80 years of experience in the U.S. financial markets covering multiple economic cycles supports this contention (see the figure), as does an enormous volume of financial literature. In fact, the most comprehensive document in support of the FE approach, *A Pension Actuary's Guide to Financial Economics*, states on page 7, "Financial Economics readily accepts that equities are expected to earn a higher return than bonds." Lastly, if the investment community did not believe that equity returns will be greater than bond returns, there would be no reason for investors to accept the much higher volatility of the stock market over the relative stability of the bond market. There are certainly no guarantees on this issue, but it is highly likely that a pension plan that holds a balanced portfolio of stocks and bonds will experience long-term investment returns that are considerably higher than the yields available in the bond market.

To the extent that the plan assets earn returns above the discount rate used in measuring the funding liabilities, the plan sponsor will have set aside more money than necessary to support the benefit payments. This produces several undesirable results. First, benefit levels may be lower than what the budgeted contributions can realistically support because the low discount rate is overstating the future cost of the benefits. This can produce an intergenerational

imbalance, as possible benefit improvements are delayed until the expected investment gains are realized. Second, the stable budgeting objective can't be realized because low discount rates coupled with higher returns means that near-term contributions will be higher while longer term contributions will decrease as investment gains (relative to the low discount rate) occur.

This approach also leads to misleading conclusions regarding a plan's funding strength. Consider a plan invested 50% in equities and 50% in bonds. If interest rates rise by 100 basis points, the plan's funded percentage will improve significantly under the FE approach. That's because the entire benefit liability will decrease in response to the interest rate change, while only half of the assets will exhibit a comparable movement. However, following this rate change the plan will be in no better position to provide long-term benefits than it was before the change. The cash flows from the bonds it holds are unchanged, and long-term equity returns are not well-correlated to short-term movements in bond rates.

Similarly, a low-interest rate environment will make plans appear more underfunded than they actually are. It is entirely possible and, in many cases, highly likely that a plan that is 70% funded on an FE basis actually has sufficient assets to pay 100% of the benefits it has promised. Many observers who focus on FE-based funding percentages completely misinterpret the figures in this regard. The current interest rate environment has an enormous impact on the cost of settling pension liabilities but very little impact on the long-term cost of supporting ongoing pension liabilities. In essence, the funded basis measured on an FE basis represents a short-term view of a long-term obligation.

Funding on a Financial Economics Basis Introduces Unnecessary Cash Flow Volatility

To the greatest extent possible, companies need to be able to fund their pension plans with level and predictable contributions. Anything that works against this goal will ultimately reduce the willingness of companies to sponsor plans. Multiemployer pension plans typically hold less than 50% of their assets in securities that are directly interest rate-sensitive. Forcing the cash funding calculations

to move with market interest rates while the majority of the asset portfolio is not interest rate-sensitive introduces an enormous degree of unnecessary volatility into the plan sponsor's cash flow budgets and also disrupts the collective bargaining process by which multiemployer plans are funded. Cash flow uncertainty can be extremely burdensome to plan sponsors and is a key reason why so many large U.S. companies no longer sponsor defined benefit plans.³ Some observers believe that the volatility of pension cost is a bigger reason for the decline of corporate pension plans than the actual amount of costs.

While the need for predictable contribution levels is common to all pension plans, it is of paramount importance in multiemployer plans. These plans receive contributions in accordance with CBAs that typically cover three- to five-year periods. The process of ratifying a CBA is often long and difficult and, once adopted, these agreements are extremely difficult to modify prior to expiration. Further, pension contributions are part of the overall wage package that employees receive from their employers. Every dollar that flows into the pension plan means that the employees are foregoing other compensation in exchange for supporting their pension benefits. While the participants in these plans understand and appreciate the importance of well-funded pension plans, it is impractical for them to accept a sudden and significant drop in their take-home pay. For this reason, during times of serious pension funding challenges, it is necessary to implement increases in the pension contribution rate gradually, over a period of time that may encompass multiple bargaining cycles.

Funding on a Financial Economics Basis Impairs Benefit Security

The trustees of multiemployer plans have little control over the amount of money that flows into the plans. The unions and the employers negotiate contribution rates as part of the collective bargaining process. Many multiemployer plans receive contributions under multiple CBAs, and in large national plans there can be hundreds of these agreements. Plan trustees have a fiduciary obligation to invest the assets for the sole and exclusive benefit of participants and to establish and maintain the benefit levels the participants will receive.

The single employer plan funding rules under the Pen-



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invested in bonds so that the plan's assets and FE approach liabilities always move together in the same direction, as market interest rates rise and fall, in order to stabilize contributions. Investing only in bonds likely increases the plan's cost over time, although corporate financial managers often are willing to accept higher pension costs in exchange for reduced volatility.

In single employer plans, it is common for the plan's benefit provisions to remain unchanged for long periods of time. These plans frequently determine benefits as a percentage of participants' salaries, so there is less urgency to change the benefit levels over time to keep pace with inflation. Multiemployer plans generally calculate benefits as level dollar amounts, which need to be adjusted periodically to keep pace with inflation. Further, the plan trustees frequently change the level of benefit accrual and the amount of ancillary benefits, such as early retirement subsidies, survivor benefits and disability benefits, in direct response to plan funding levels. In multiemployer plans, the calculated funding target has a far more direct effect on participants' benefits than occurs in single employer plans.


Consider a multiemployer plan in which the actuary (again, with input from the investment consultant) expects the assets to produce a 7.5% return annually. At this level of return, the plan can support a monthly benefit level of \$80 per year of service. If the actuary determines the funding target using the FE approach, and this encourages the trustees to adopt an LDI strategy, benefit levels must be decreased in response to the lower expected investment earnings. Depending on the bond rates, the new level of benefit accrual might be only \$60 per year of service. While it is true that the more conservative funding and investment approach will typically mean that the security of the \$60 benefit level is greater than the security of the \$80 benefit level, this security is achieved only by sacrificing one-fourth of the benefit accrual level that the plan otherwise had the potential to provide. Under the traditional approach, it is likely the additional \$20 of accrual would have been paid. Under the FE approach with an LDI investment strategy, it is almost certain it will not be paid.

This is not to suggest that benefits should be maximized

sion Protection Act have sparked interest in *liability-driven investing* (LDI), in which essentially all of the plan's assets are

to use every dollar of expected investment return. Without prudent plan design and funding policies that develop and maintain adequate funding cushions, multiemployer plan contributions will encounter the same volatility that has led to the decline of single employer plans.

Conclusion

When presented with a pension benefit liability figure or a pension plan's funded percentage, it is essential that the user understand the context in which these measurements are used. While the FE approach to measuring pension liabilities has its place, it is inappropriate for determining the funding requirements or the funded position of multiemployer pension plans. The only basis for funding a multiemployer plan or for assessing its financial health that serves the best interests of both plan sponsors and participants is one that reflects the expected earnings of the plan's assets—the traditional approach. 

Endnotes

1. Technically, a *multiemployer* plan exists if there is at least one CBA covering the plan's participants. Plans sponsored by more than one employer covering no union participants are called multiple employer plans. Further, this article focuses on jointly sponsored Taft-Hartley multiemployer pension plans, and does not consider the relatively small number of non-Taft-Hartley multiemployer plans.

2. This assumes that the employer continues to participate in the plan. If the employer withdraws from the plan, it may be assessed withdrawal liability, for which the employer may be liable outside of the CBA. One other (uncommon) situation where the employer's obligation can extend beyond the terms of the CBA is if the plan develops an "accumulated funding deficiency" under the ERISA minimum funding rules. In that case, the employer may be liable for contributions which are greater than those required under the collective bargaining agreement.

3. It is not just cash flow volatility that has driven corporate pension plan sponsors away from defined benefit plans. Volatility of pension expense, as disclosed on companies' financial statements under Financial Accounting Standards Board accounting rules, is at least as important a factor in the decline of corporate pension plans.